

Workshop I: Convex Optimization and Algebraic Geometry

Tuesday September 28, 2010

- 8:30–9:15 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:15–9:30 *Welcome and Opening Remarks*
- 9:30–10:20 **Raman Sanyal** (University of California, Berkeley (UC Berkeley))
Orbitopes and Theta bodies
- 10:30–11:00 *Break*
- 11:00–11:50 **Grigoriy Blekherman** (Virginia Polytechnic Institute and State University)
Nonnegative Polynomials and Sums of Squares.
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Markus Schweighofer** (Universität Konstanz)
A natural sums of squares version of Farkas' lemma that holds true for linear matrix inequalities (joint work Igor Klep)
- 3:00–3:15 *Break*
- 3:15–4:05 **Lek-Heng Lim** (University of Chicago)
Convexity, secant varieties, and tensor approximations
- 4:15–4:30 *Break*
- 4:30–5:20 **Ioana Dumitriu** (University of Washington)
Matrix algorithms: fast, stable, communication-optimizing—random?!
- 5:30–7:30 *Reception and Poster Session (Hosted by IPAM)*

Wednesday September 29, 2010

- 8:30–9:30 *Continental Breakfast*
- 9:30–10:20 **Jan Draisma** (Technische Universiteit Eindhoven)
Finiteness results for infinite-dimensional varieties
- 10:30–11:00 *Break*

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- 11:00–11:50 **Bernard Mourrain** (Institut National de Recherche en Informatique Automatique (INRIA))
Moment matrices, border bases and real radical
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Stephanie Wehner** (National University of Singapore)
The quantum moment problem
- 3:00–3:15 *Break*
- 3:15–4:05 **Dylan Thurston** (Barnard College)
Universal Rigidity of Frameworks
- 4:15–4:30 *Break*
- 4:30–5:20 **Jean Lasserre** (Université de Toulouse III (Paul Sabatier))
A new look at nonnegativity on closed sets and polynomial optimization

Thursday September 30, 2010

- 8:30–9:30 *Continental Breakfast*
- 9:30–10:20 **Joao Gouveia** (University of Washington)
Sums of squares relaxations for Convex Hulls of Semialgebraic Sets
- 10:30–11:00 *Break*
- 11:00–11:50 **Levent Tunçel** (University of Waterloo)
*Geometric Representations of Graphs, Semidefinite Optimization and Strong Convex Relaxation
Methods based on Polynomial Inequalities*
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Didier Henrion** (Centre National de la Recherche Scientifique (CNRS))
Semidefinite programming for optimizing convex bodies under width constraints
- 3:00–3:15 *Break*
- 3:15–4:05 **Konrad Schmüdgen** (Universität Leipzig)
Positivity, sums of squares and positivstellensätze for $$ -algebras*
- 4:15–4:30 *Break*
- 4:30–5:20 **Scott Mccullough** (University of Florida)
Freeing linear matrix inequalities, semi-algebraic sets, and analytic change of variables.

Friday October 1, 2010

- 8:30–9:30 *Continental Breakfast*
- 9:30–10:20 **Etienne De Klerk** (Katholieke Universiteit Brabant (Tilburg University))
On the complexity of computing the handicap of a sufficient matrix
- 10:30–11:00 *Break*
- 11:00–11:50 **Petter Branden** (University of Stockholm)
Obstructions to determinantal representability
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:50 **Victor Vinnikov** (Ben Gurion University of the Negev)
- 3:00–3:15 *Break*
- 3:15–4:05 **Christine Bachoc** (Université de Bordeaux I)
Optimal subsets of Grassmann spaces and applications
- 4:15–4:30 *Break*
- 4:30–5:20 **Jiawang Nie** (University of California, San Diego (UCSD))
Discriminants and Nonnegative Polynomials

